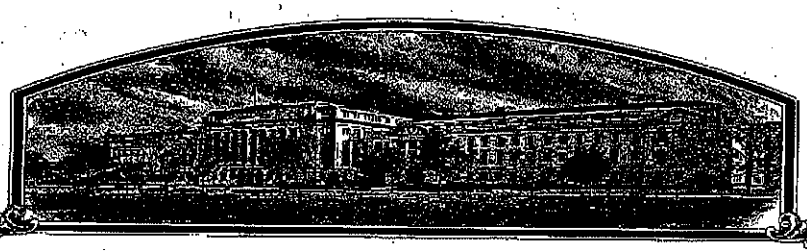

No. 9700354

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Sutton Seed Research Corporation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

Artichoke

'D. G. - 101'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of September, in the year of our Lord one thousand nine hundred and ninety-nine.

Attest:

Robert W. Sebastian

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Dan Glickman

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
SULTON SEED RESEARCH CORPORATION

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
4-B-57

3. VARIETY NAME
D. G. - 101

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
86-705 Avenue 54, Suite A
Coachella, CA 92236

6. TELEPHONE *(include area code)*
760-399-4278

6. FAX *(include area code)*
760-399-4281

FOR OFFICIAL USE ONLY

PVPO NUMBER

FILING DATE
9700354
7/16/97

7. GENUS AND SPECIES NAME
Cynara Scolymus L.

8. FAMILY NAME *(Botanical)*
Compositae

8. CROP KIND NAME *(Common name)*
Globe Artichoke

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
California

12. DATE OF INCORPORATION
4/28/93

FEES RECEIVED

FILING AND EXAMINATION FEE:
$ 2450.00
DATE
07-16-97

CERTIFICATION FEE:
$ 300.00
DATE
August 6, 1999

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Effie Anastassiou, Attorney at Law
P.O. Box 2210
Salinas, CA 93902

14. TELEPHONE *(include area code)*
408-754-2501

15. FAX *(include area code)*
408-754-0621

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of the Variety
- d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*

☐ YES *(If "yes," answer items 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?

☐ YES *(If "yes," give names of countries and dates)* ☒ NO

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
By: Jeff Percy			
NAME *(Please print or type)* Sulton Seed Research Corporation		NAME *(Please print or type)*	
CAPACITY OR TITLE President	DATE 7/15/97	CAPACITY OR TITLE	DATE

EXHIBIT A
(First Amended)
Origin and Breeding History of the "D.G. - 101" Artichoke

The objective of the Applicant was to breed a seeded artichoke variety, similar in bud size and shape to the Green Globe variety (which is reproduced asexually and grown as a perennial), which could be grown as an annual seeded crop in the desert valleys of California and Arizona to fill a marketing void from mid-January to mid-March, which is the period between the fall and spring harvests of the Green Globe artichoke in the Salinas Valley, Calif.

In the fall of 1980, Mr. Joseph Principe, an employee of the United States Dept. of Agriculture (U.S.D.A.) research field station in Brawley, Calif., grew out six different public lines of French and Italian artichoke varieties that Mr. Principe had obtained from Ali Ibriham, who was then working for Dr. E.J. Ryder at the U.S.D.A. research field station in Salinas, California. Mr. Ibriham had obtained the public lines of French and Italian artichoke varieties that he gave to Mr. Principe from the University of California at Davis. All of the lines were extremely variable; however, one public line from the French variety known as "Grosse Vert D'Aiver" had two plants that produced artichokes significantly earlier than the other lines.

The best and earliest plant of the "Grosse Vert D'Aiver" variety was subsequently selected by Mr. Principe for crossing with an Italian artichoke line which had produced artichokes with a similar appearance in an adjacent trial plot. The adjacent trial plot had been planted with two different public lines of Italian artichoke varieties that Mr. Principe had obtained from Dr. R.C. Tang, Desert Seed Co., El Centro, California. Mr. Principe did not record the names of these two Italian public varieties which were provided to him by Dr. Tang for research and trial use. These two Italian lines were extremely variable.

In the F_1, F_2, and F_3 generations derived from the above-described cross, sib crossings of selected individual plants were used by Mr. Principe to propagate each subsequent generation. In 1985, a seed sample from a single plant in a small population of the F_3 generation, which showed an excellent potential for earliness, although still variable, was designated as K6 - RR♂ x K8♀ and given by Mr. Principe to Jack Bros. & McBurney, Inc. ("Jack Bros."), a Calif. corporation, located in Brawley, Calif. Mr. Principe has advised the Applicant that he did not publicly release this line, or any other line derived from its parents, to any other person.

Jack Bros. grew out the seed obtained from Mr. Principe in 1985 in Brawley, Calif., which it designated as F_1 seed, and observed that the variety showed distinct earliness, upright plants and multiple buds with high yield potential. The F_2 seed

grown by Jack Bros. in 1986 segregated widely for all characteristics, with approximately ten percent (10%) showing upright plants with prolific bud formation, compact conical bud shape similar to the Green Globe variety, and with early maturing fruit available for harvest during the desired period of mid-January to mid-March (the "Desired Characteristics"). Jack Bros. made selections from the subsequent generations of K6 - RR♂ x K8♀ for plants with the Desired Characteristics, and the selections from the new generations showed an increasing percentage of plants with the Desired Characteristics.

On May 19, 1993, Jack Bros. transferred all of its right, title and interest in and to the artichoke breeding lines which consisted of the selections it had made from K6 - RR♂ x K8♀ to Sulton Seed Research Corporation ("Applicant"), a Calif. corporation.

In the fall of 1993, Applicant selected seventy-five (75) plants with the Desired Characteristics from two (2) fields in the Coachella Valley, Calif. for self-pollination. From these selections, thirty-nine (39) inbred lines were obtained and selections were made from these inbred lines.

In 1994, a second generation of the selections made in the Coachella Valley, Calif. and the Imperial Valley, Calif. from the inbreeding resulted in forty (40) inbred lines. One inbred line, 4-B-57, was relatively uniform in exhibiting the Desired Characteristics.

In 1995, approximately one hundred (100) plants were selected from inbred line 4-B-57 (from seed which had been produced in 1994) and were planted in isolation in the Imperial Valley, Calif. with twelve (12) plants selected for sib crossing and all other plants removed from the field.

In 1996, approximately three hundred (300) plants were planted in the Imperial Valley, Calif. from the 1995 seed produced from the sib crossings from inbred line 4-B-57. These plants were grown in isolation with eighty-five (85) plants selected for sib crossing and all other plants removed from the field.

In 1997, approximately one hundred and fifty (150) plants were planted in the Imperial Valley, Calif. from the 1996 seed produced from the sib crossings from inbred line 4-B-57. These plants were grown in isolation with one hundred (100) plants selected for sib crossing and all other plants removed from the field.

The above described sib crossings and selections for the Desired Characteristics led to the development of the D.G. - 101 variety of artichoke from inbred line 4-B-57.

The D.G. - 101 variety has been uniform and stable in all distinguishing characteristics for the last four generations, commencing with the seed trialed

during the 1995/1996 winter season in the desert valleys of California.

There are two variants of the D.G. - 101 variety which each occur at a frequency rate of approximately 5% of the plant population. One type of variant has an artichoke head which is more ellipsoid shaped than conical shaped. All other morphology of this variant is similar to D.G. - 101. Pictures of this type of variant are attached to this Exhibit A as Photos L and T of Section 1, and are incorporated herein by reference. The other type of variant has a thorn on the tips of the bracts which is less than 5mm in length. A picture of this type of variant is attached to this Exhibit A as Photo W of Section 2 and is incorporated herein by reference. All other morphology of this variant is similar to D.G. - 101.

There are two off-types which each occur at a frequency rate of approximately .2% of the plant population. One off-type has a normal D.G. - 101 shape and appearance, but it has a 30% or greater purple coloring, rather than a dull, medium green color. A picture of this off-type is attached to this Exhibit A as Photo Q of Section 3 and is incorporated herein by reference. The other off-type is an artichoke which looks like a cardone bud, which contains multiple layers of narrow bracts less than 3/4" wide extending down the stem past the bud node. A picture of this off-type is attached to this Exhibit A as Photo X of Section 4 and is incorporated herein by reference.

During the 1996-1997 season, a performance test with three (3) replications was conducted in the Coachella Valley, Calif. to compare the D.G. - 101 variety with the Imperial Star seeded artichoke variety. Each replication consisted of a comparison of sixty-three (63) plants of each variety. In all three (3) replications, D.G. - 101 was observed to be a more upright plant with many more primary and secondary buds, and with an approximate thirty (30) to thirty-five (35) day earlier maturity.

During the 1997-1998 season, a performance test with three (3) replications in twelve (12) rows was conducted in the Coachella Valley, Calif. to compare the D.G. - 101 variety with the Imperial Star seeded artichoke variety and with two other seeded artichoke varieties which were commercially available at the time of the performance test–the "Emerald" variety and a seeded "Green Globe" variety (produced by Classic Seed--which is different from the "Green Globe" variety which is grown in the Salinas Valley, California area as a perennial and reproduced asexually). The number of plants per replication were as follows: D.G. - 101: 249 plants, 238 plants and 255 plants; Imperial Star: 236 plants, 242 plants and 248 plants; Emerald: 172 plants, 182 plants and 201 plants; and seeded Green Globe: 231 plants, 206 plants, and 211 plants. Again, in all three (3) replications D.G.-101 was observed to be significantly earlier (harvest commencement dates were week of December 24, 1997 for D.G.-101, week of January 19, 1998 for Imperial Star and the seeded Green Globe, and the week of January 30, 1998 for Emerald) and with

a substantially larger number of boxes of artichokes harvested per acre.

During the 1998-1999 season, a performance test with three (3) replications in twelve (12) rows was again conducted in the Coachella Valley, Calif. to compare the D.G. -101 variety with Imperial Star, Emerald and seeded Green Globe. The number of plants per replication were as follows: D.G. - 101: 262 plants, 261 plants and 259 plants; Imperial Star: 239 plants, 267 plants and 244 plants; Emerald: 300 plants, 260 plants and 275 plants; and seeded Green Globe: 250 plants, 226 plants, and 234 plants. Severe frosts and deep freezes during the growing season reduced the quantity of commercially acceptable artichokes which could be harvested. However, despite these adverse conditions, in all three (3) replications D.G.-101 was again observed to be significantly earlier (harvest commencement dates were week of December 29, 1998 for all three (3) replications of D.G.-101, week of January 11, 1999 for all three (3) replications of Imperial Star and the seeded Green Globe, and the week of January 30, 1999 for all three (3) replications of Emerald) and with a significantly larger number of boxes of artichokes harvested per acre during the peak harvest period.

PEDIGREE - "D.G. - 101" ARTICHOKE

Year	Generation	Cross-Process-Notes
1985	Cross	K6 - RR♂ x K8♀
1985-1992	F1 thru F8	Observation and Selection
1993	F1	Self-Pollinated
1994	F2	Self-Pollinated
1995	F3	Sib Cross of Line 4-B-57
1996-1997	F4 thru F5	Multiple Sib Crosses of Line 4-B-57

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EXHIBIT B
(First Amended)
Summary Statement of Variety's Novelty

D.G. - 101 most closely resembles the "Imperial Star" seeded variety of artichoke in overall appearance and growing characteristics. However, D.G. - 101 is novel and distinct from "Imperial Star" and other seeded artichoke varieties which are grown in the California and Arizona desert areas in the following manner: (i) it produces artichokes approximately thirty (30) to thirty-five (35) days earlier (from seeding to harvest) in the desert areas and the peak harvest period lasts longer; (ii) it produces a more upright and compact plant; (iii) it has more primary and secondary buds; (iv) it has a conical, more compact, and larger head which more closely resembles the perennial "Green Globe" artichoke (not the seeded variety); (v) the bud has a dull, medium green color; and (vi) the bracts are elongated.

Each of the above novel and distinct differences in bud and plant characteristics are discussed in more detail below, with specific comparisons made to "Imperial Star," and some comparisons also made to the seeded varieties of Green Globe and Emerald, based on the three performance tests conducted by the Applicant.

Earliness/Longer Harvest

For the desired harvest period of mid-January to mid-March in the desert areas, D.G. - 101 requires an approximate one hundred seventy (170) day growing period with a subsequent approximate sixty (60) day peak harvest period. In a comparison test in the 1996-1997 season, "Imperial Star" required an approximate two hundred five (205) day growing period with a subsequent approximate fifty (50) day peak harvest period. Artichoke harvest from the D.G. - 101 variety was approximately thirty (30) to thirty-five (35) days earlier than from the "Imperial Star" variety in that test.

Subsequent performance tests conducted in the 1997-1998 season and the 1998-1999 season which compared D.G. - 101 to "Imperial Star" and two other commercially available seeded artichoke varieties (Green Globe and Emerald) again showed a significant harvest of artichokes from the D.G. - 101 variety during the thirty-five (35) day early market period, with significantly less production from "Imperial Star" and the other two comparison varieties. Further, those same two trials showed that the D.G. - 101 variety produced significantly more artichokes during the sixty (60) day peak harvest period, as compared to the "Imperial Star" variety and other two varieties.

Attached hereto as Appendix B are general descriptions of the performance tests conducted in the 1997-1998 season and the 1998-1999 season, together with summaries of harvest data in numerical format, and tables showing an analysis of variance (ANOVA) and a mean separation test.

Plant Appearance

D.G. - 101 is a more upright and compact plant, as compared to "Imperial Star" which is bushier and lower growing.

Two pictures which demonstrate the differences in plant appearance which were taken from the 1998-1999 performance trial are attached to this Exhibit B with the caption "Plant Appearance," and are incorporated herein by reference. One picture shows a D.G. - 101 plant and an "Imperial Star" plant lying side by side on the ground, and another picture shows the plants growing in the field with a standing ruler demonstrating the differences in height.

On February 25, 1999, during the course of the 1998-1999 performance test, the height of 100 D.G. - 101 plants were measured and the height of 100 "Imperial Star" plants were measured. The average height of the D.G. - 101 plants on that date was 55.11 inches. In comparison, on the same date the average height of the "Imperial Star" plants was 44.69 inches.

Primary and Secondary Buds

In general, D.G. - 101 has more primary and secondary buds than "Imperial Star", with the buds being defined as follows. The first shoots off the first internodes of the main stalk of the plant (which are referred to as the 1st Branches), contain the primary buds (artichoke heads). The shoots off the second internodes off the 1st Branches (which are referred to as the 2nd Branches), contain the secondary buds (artichoke heads).

The primary buds generally consist of artichoke heads which are the large commercial sizes known as "12's" and "18's". The commercial standards for "12's" are 12 heads per box weighing 12 to 14 pounds per box, and with a circumference of each head of between 14.5" to 15.5". The commercial standards for "18's" are 18 heads per box weighing 18 to 20 pounds per box, and with a circumference of 13.25" to 14.25".

The secondary buds generally consist of artichoke heads which are the smaller commercial sizes known as "24's" and "30's". The commercial standards for "24's" are 24 heads per box weighing 18 to 20 pounds per box, and with a circumference

of each head of between 12" to 13". The commercial standards for "30's" are 30 heads per box weighing 18 to 20 pounds per box, and with a circumference of 11.25" to 12".

In a comparison test conducted during the 1996-1997 season, D.G. - 101 averaged approximately six to seven (6-7) primary heads and approximately ten to twelve (10-12) secondary heads per plant. "Imperial Star" averaged approximately four to five (4-5) primary heads and approximately six to eight (6-8) secondary heads per plant.

In a subsequent performance test conducted in the 1997-1998 season, D.G. - 101 averaged 1,027.0 boxes of primary heads per acre, while "Imperial Star" averaged 643.7 boxes of primary heads per acre. D.G. - 101 averaged 295.1 boxes of secondary heads per acre, while "Imperial Star" averaged 229.2 boxes of secondary heads per acre. Attached hereto as Appendix B-1 is a summary in numerical format of the data collected on primary and secondary heads during the performance test conducted in the 1997-1998 season, together with tables showing an analysis of variance (ANOVA) and a mean separation test.

During another performance test conducted in the 1998-1999 season (during which severe frosts, deep freezes and market conditions reduced the quantity of production), D.G.-101 averaged 552.5 boxes of primary heads per acre, while "Imperial Star" averaged 419.2 boxes of primary heads per acre. D.G.-101 averaged 170.1 boxes of secondary heads per acre, while "Imperial Star" averaged 145.1 boxes of secondary heads per acre. Attached hereto as Appendix B-1 is a summary in numerical format of the data collected on primary and secondary heads during the performance test conducted in the 1998-1999 season, together with tables showing a analysis of variance (ANOVA) and a mean separation test.

Head Appearance

The artichoke head of D.G. - 101 is conical in shape, it has tight and elongated bracts, and it is closed at the top of the bracts. D.G. - 101 has a stem which is large in diameter.

In comparison, the artichoke head of "Imperial Star" has a more oval/star shape, it has shorter bracts, and it has an opening at the top of the bracts. Imperial Star has a stem which is small in diameter. Two pictures taken from the 1998-1999 performance test which demonstrate the differences in head appearance between D.G. - 101 and "Imperial Star" are attached to this Exhibit B with the caption "Head Appearance", and are incorporated herein by reference. Also attached is a picture showing a sample of the stems of D.G. - 101 and "Imperial Star" which were taken

from the 1998-1999 performance test. In the sample, the stem of D.G. - 101 measured 1 1/16" in diameter, while the stem of "Imperial Star" measured 3/4" in diameter.

The artichoke heads of Green Globe and Emerald are also quite different from D.G. - 101. The artichoke heads of Green Globe and Emerald both have shorter bracts which are open (not tight) at the bottom. There is an opening at the top of the artichoke head of Emerald. Attached to this Exhibit B and incorporated herein by reference are two pictures which show the differences in head appearance between D.G. - 101 and Green Globe and two pictures which show such differences between D.G. - 101 and Emerald. These pictures were taken from the 1998-1999 performance test.

Bud Color

D.G. - 101 has a dull, medium green color, with less than ten percent (10%) external purple color and internal purple color. "Imperial Star" has a glossy bronze green color, with a much larger percentage of external purple color and internal purple color. The Munsell Book of Color, Glossy Finish Collection, was used to make comparisons of the differences in the green colors of the two varieties during the 1998-1999 performance test with the following results: the bud color of D.G. - 101 is Munsell 5GY Hue 5/6, while the bud color of "Imperial Star" is Munsell 2.5GY Hue 6/6; the bract color of D.G. - 101 is Munsell 7.5GY Hue 4/2, while the bract color of "Imperial Star" is Munsell 10GY Hue 4/2.

Appearance of Bracts

D.G. - 101 has bracts which are elongated. "Imperial Star" has short oval bracts. The bracts of Green Globe and Emerald are also shorter than D.G. - 101. Attached to this Exhibit B with the caption "Appearance of Bracts", and incorporated herein by reference, are pictures (2 each) which show the differences in dimensions of a sample of third layer bracts taken from the 1998-1999 performance test between D.G. - 101/"Imperial Star", D.G. - 101/Green Globe, and D.G. - 101/Emerald.

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APPENDIX B

(Note all references to "Desert Globe" herein are to the "D.G.-101" Variety)

Sulton Seed Research Corporation
1997-1998 Seed Artichoke Performance Trial
Trial data for the early marketing period, expressed as "Boxes Harvested Per Acre In The Early Marketing Period"
Trial data collected from seven harvests in the interval from 12-24-97 thru 1-30-98

Variety	Boxes Harvested Per Acre In the Early Marketing Period (35 Days)		
Green Globe	21.2	17.0	53.1
Emerald	4.1	3.8	3.5
Desert Globe	388.0	291.2	173.0
Imperial Star	23.7	28.9	42.3

Analysis of Variance (One Way):

Sum Green Globe → 91.3; $\bar{x}$ = 30.4
Sum Emerald → 11.4; $\bar{x}$ = 3.8
Sum Desert Globe → 852.2; $\bar{x}$ = 284.1
Sum Imperial Star → 94.9; $\bar{x}$ = 31.6

Error M S	3,019.1
F	17.23
df_1	3
df_2	8

critical "F" value is 7.59 @ .01

Duncan's New Multiple Range Test:

α = .05 n = 3 S^2_ω = 3,019.1 v = 8

r	2	3	4
$\alpha' C(r, v)$	3.26	3.39	3.47
W_r	103.42	107.54	110.08

Variety:	Emerald	Green Globe	Imperial Star	Desert Globe
Sample Mean:	3.8	30.4	31.6	284.1

Conclusion: In the early marketing period, the yields of the varieties "Emerald", "Green Globe", and "Imperial Star" were not significantly different. However, all three varieties yielded significantly less than "Desert Globe".

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APPENDIX B

(Note all references to "Desert Globe" herein are to the "D.G.-101" Variety)

Sulton Seed Research Corporation
1998-1999 Seed Artichoke Performance Trial
Trial data for the early marketing period, expressed as "Boxes Harvested Per Acre In The Early Marketing Period"
Trial data collected from six harvests in the interval from 12-29-98 thru 2-6-99

Variety	Boxes Harvested Per Acre In The Early Marketing Period (35 days)		
Green Globe	18.7	38.5	31.8
Emerald	13.2	16.3	16.6
Desert Globe	348.0	341.4	346.1
Imperial Star	155.6	198.7	167.8

Analysis of Variance (One Way):

Sum	Green Globe	→89.0;	$\bar{x}$ = 29.7
Sum	Emerald	→ 46.1;	$\bar{x}$ = 15.4
Sum	Desert Globe	→1,035.5;	$\bar{x}$ = 345.2
Sum	Imperial Star	→ 522.1;	$\bar{x}$ = 174.0

Error M S	152.5
F	465.2
df_1	3
df_2	8

critical "F" value is 7.59 @ .01

Duncan's New Multiple Range Test:

α = .05 n=3 S_w^2 =152.5 v = 8

r	2	3	4
$q'_{\alpha}(r, v)$	3.26	3.39	3.47
W_r	23.24	24.17	24.74

Variety:	Emerald	Green Globe	Imperial Star	Desert Globe
Sample Mean:	15.4	29.7	174.0	345.2

Conclusion: In the early marketing period, the yields of the varieties "Emerald" and "Green Globe" were not significantly different, however both yielded less than "Imperial Star". All three of these varieties yielded significantly less than "Desert Globe".

APPENDIX B-1

(Note all references to "Desert Globe" herein are to the "D.G.-101" Variety)

Sulton Seed Research Corporation
1997-1998 Seed Artichoke Performance Trial
Trial data expressed as "Total Boxes of Primary Buds Harvested Per Acre"
Trial data collected from fifteen harvests in the interval from 12-24-97 thru 3-20-98

Variety	Total Boxes of Primary Buds Harvested Per Acre (Boxes of 12's and 18's)		
Green Globe	439.4	567.5	530.9
Emerald	362.2	389.7	553.8
Desert Globe	1,349.5	891.3	840.1
Imperial Star	707.9	619.1	604.1

Analysis of Variance (One Way):

Sum Green Globe → 1,537.8; $\bar{x}$ = 512.6
Sum Emerald → 1,305.7; $\bar{x}$ = 435.2
Sum Desert Globe → 3,080.9; $\bar{x}$ = 1,027.0
Sum Imperial Star → 1,931.1; $\bar{x}$ = 643.7

Error M S	24,227.5
F	8.55
df_1	3
df_2	8

critical "F" value is 7.59 @ .01

Duncan's New Multiple Range Test:

α = .05 n = 3 S^2_w = 24,227.5 v = 8

r	2	3	4
$q'_{\alpha}(r, v)$	3.26	3.39	3.47
W_r	292.96	304.64	311.83

Variety:	Emerald	Green Globe	Imperial Star	Desert Globe
Sample Mean:	435.2	512.6	643.7	1,027.0

Conclusion: The yield of primary buds from the varieties "Emerald", "Green Globe", and "Imperial Star" were not significantly different, however all three varieties yielded significantly less than "Desert Globe".

a:\7appendixb.wpd\SSR

APPENDIX B-1

(Note all references to "Desert Globe" herein are to the "D.G.-101" Variety)

Sulton Seed Research Corporation
1998-1999 Seed Artichoke Performance Trial
Trial data expressed as "Total Boxes of Primary Buds Harvested Per Acre"
Trial data collected from ten harvests in the interval from 12-29-98 thru 3-3-99

Variety	Total Boxes of Primary Buds Harvested Per Acre (Boxes of 12's and 18's)		
Green Globe	99.7	79.4	108.3
Emerald	122.8	106.3	121.2
Desert Globe	547.3	543.9	566.4
Imperial Star	433.0	406.5	418.1

Analysis of Variance (One Way):

Sum Green Globe → 287.4; $\bar{x}$ = 95.8
Sum Emerald → 350.3; $\bar{x}$ = 116.8
Sum Desert Globe → 1,657.6; $\bar{x}$ = 552.5
Sum Imperial Star → 1,257.6; $\bar{x}$ = 419.2

Error M S	156.65
F	977.95
df_1	3
df_2	8

critical "F" value is 7.59 @ .01

Duncan's New Multiple Range Test:

α = .05 n = 3 S^2_ω = 156.65 v = 8

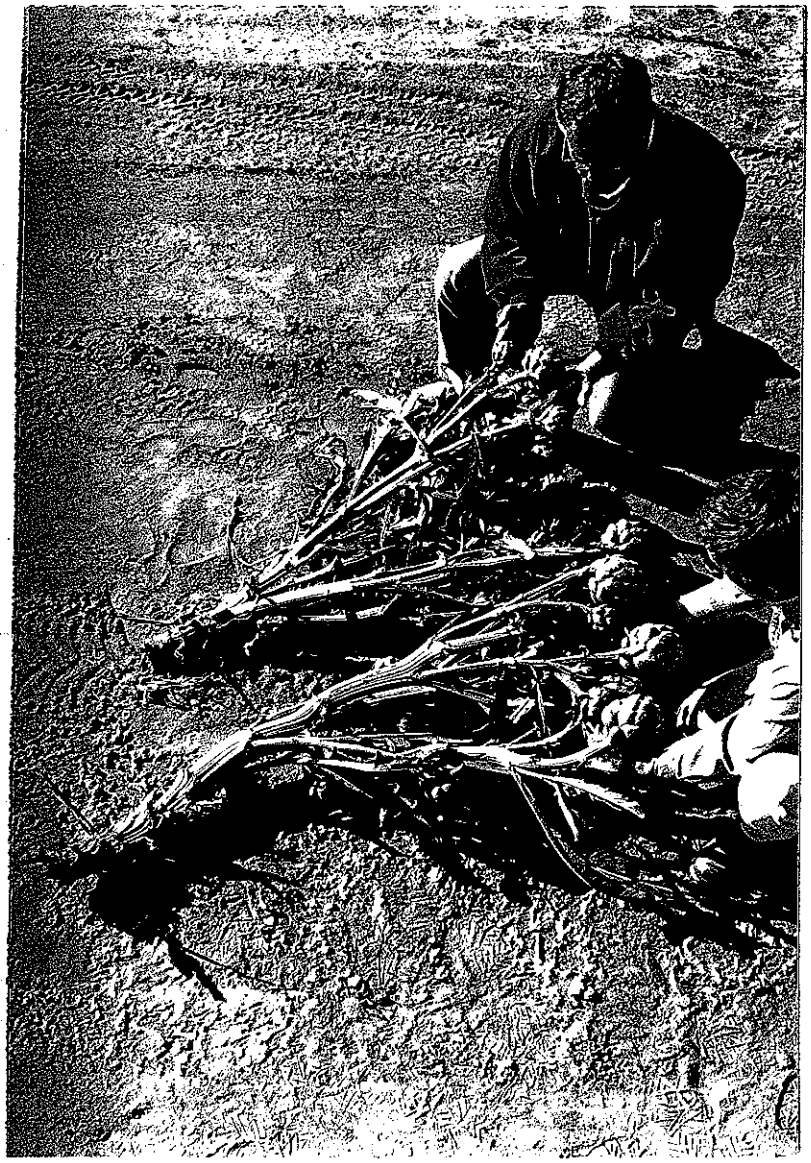
r	2	3	4
$q'_\alpha(r, v)$	3.26	3.39	3.47
W_r	23.56	24.50	25.07

Variety:	Green Globe	Emerald	Imperial Star	Desert Globe
Sample Mean:	95.8	116.8	419.2	552.5

Conclusion: The yield of primary buds from the varieties "Green Globe" and "Emerald" were not significantly different, however both yielded less than "Imperial Star". All three of these varieties yielded significantly less than "Desert Globe".

Plant Appearance

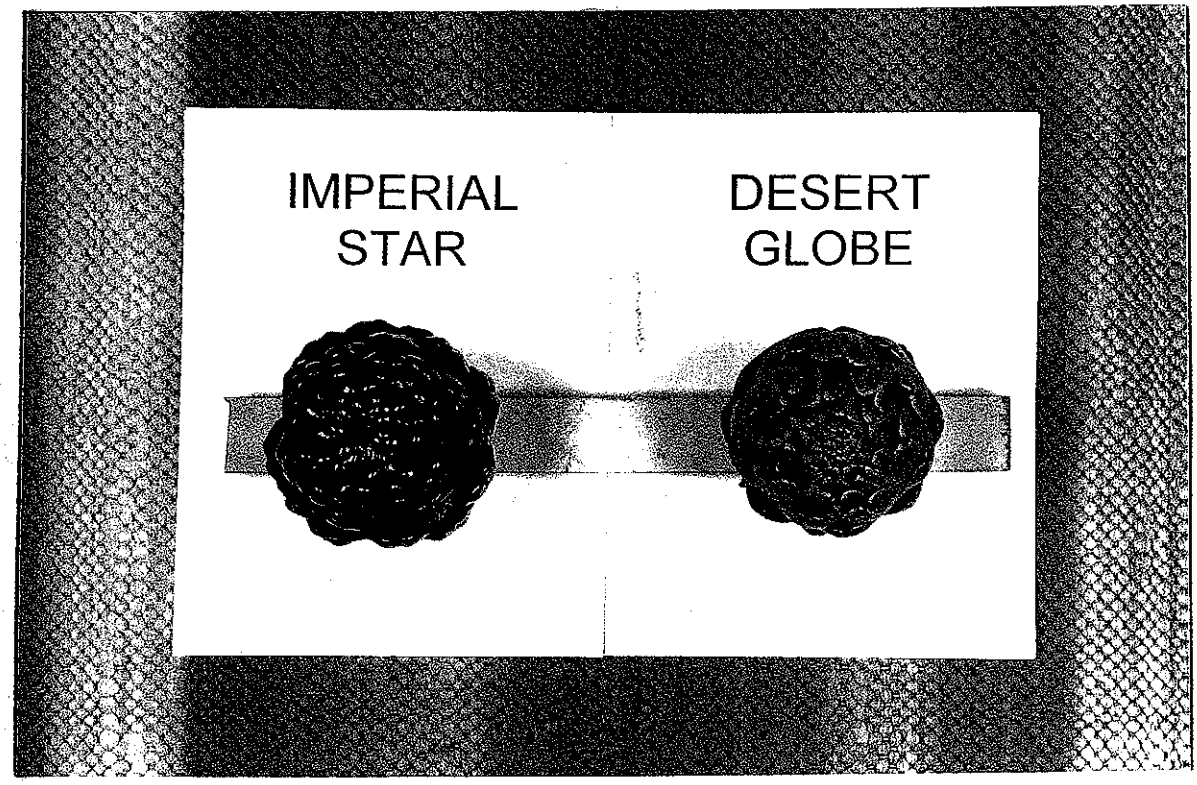
DG 101 (Desert Globe) is more upright and compact. Imperial Star is more bushy and lower growing.

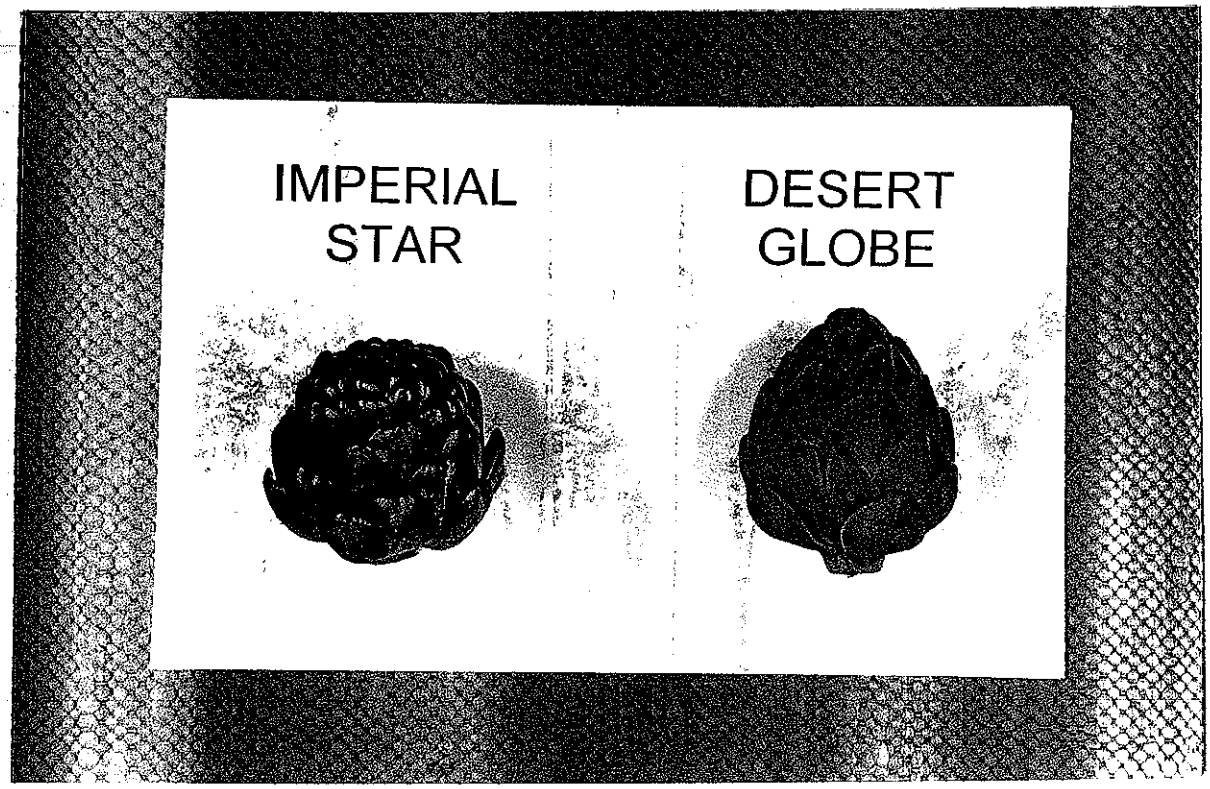


Imperial Star

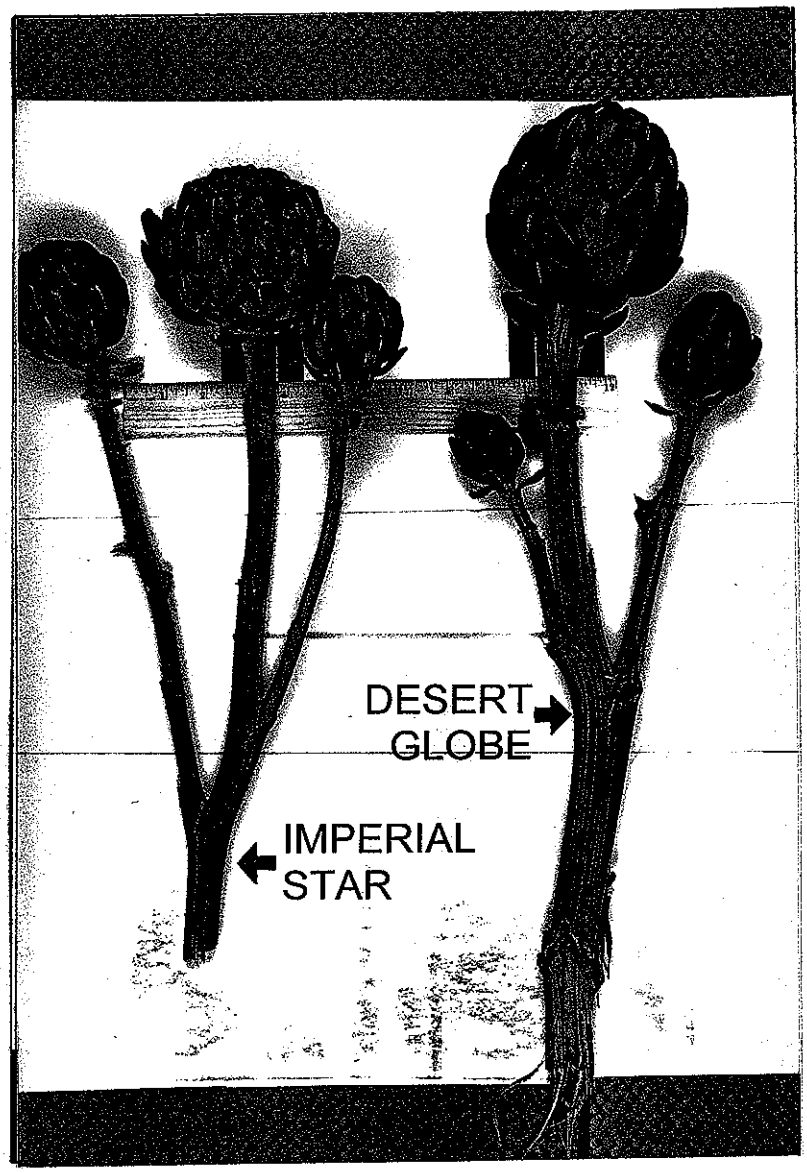
DG 101

Head Appearance





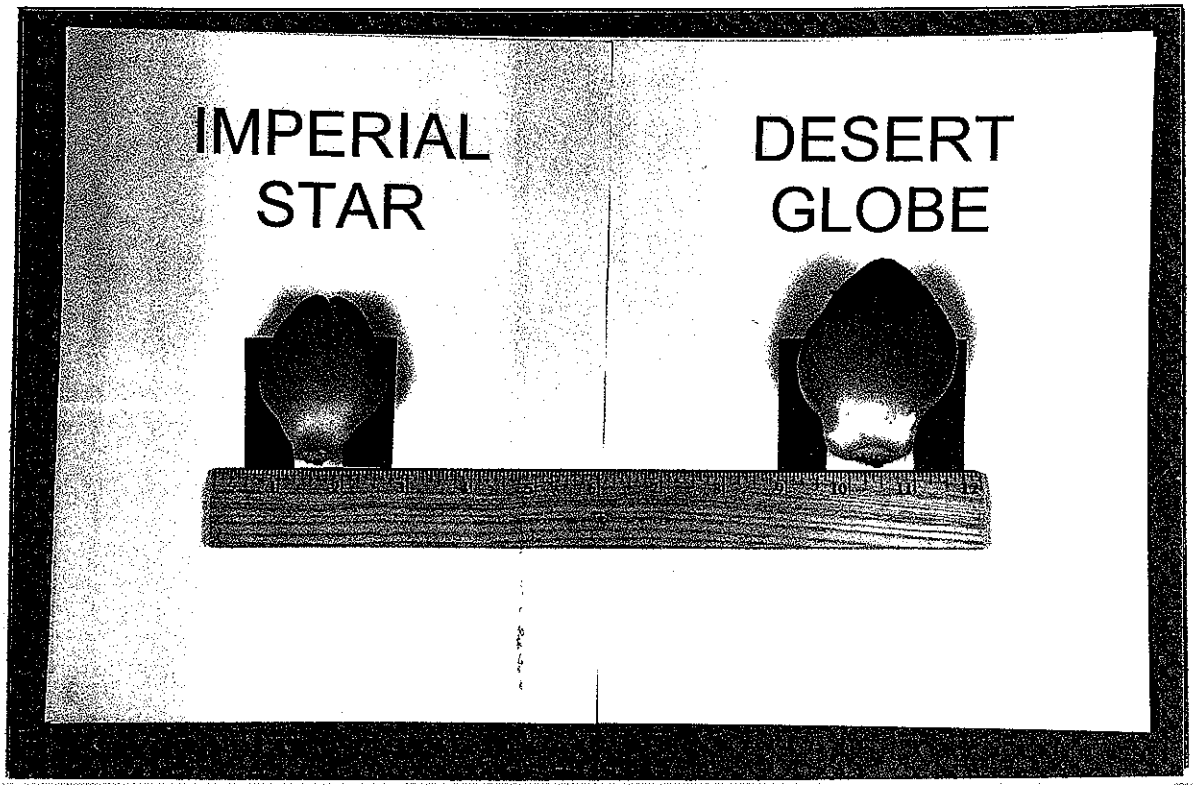
DG 101 (Desert Globe) has tight, more elongated bracts with the top closed. Imperial Star has opening at top with shorter bracts. Imperial Star has some purpling and has a star shape.

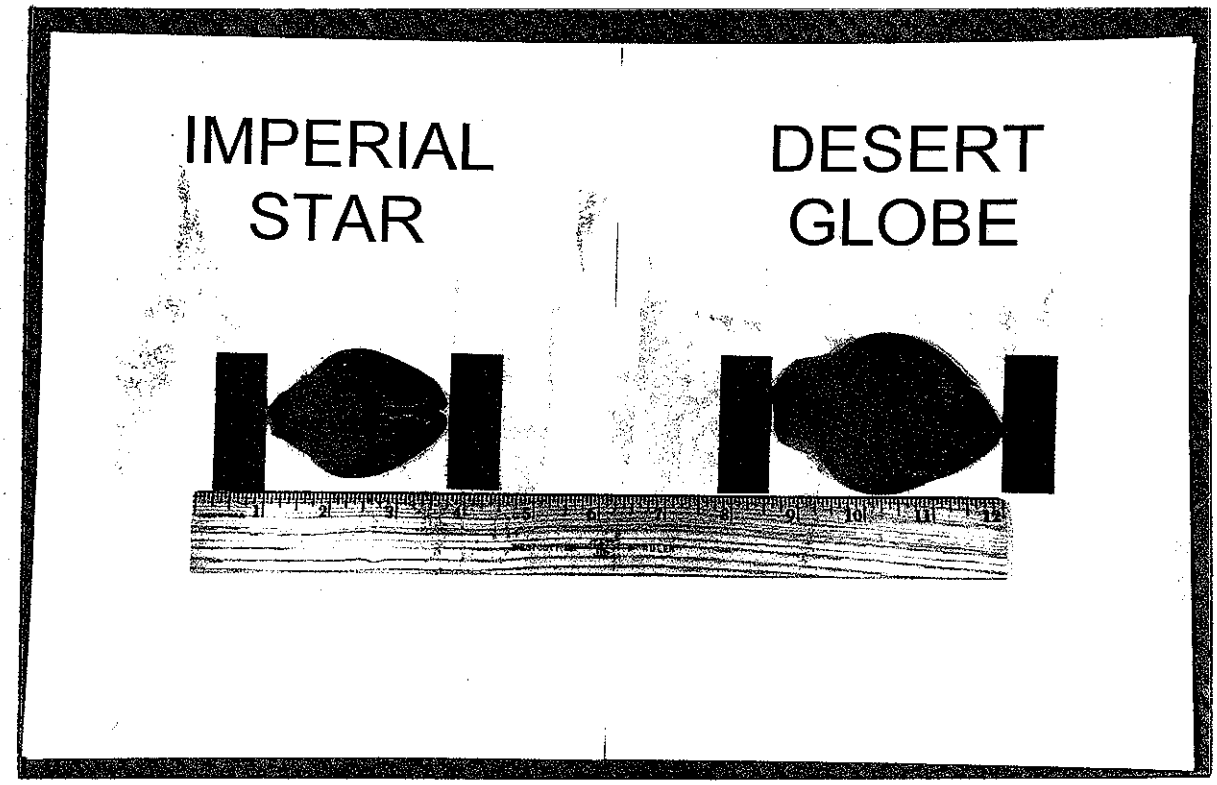


DG 101 (Desert Globe) 1st Branch measures 1 1/16" in diameter. Imperial Star 1st Branch measures 3/4".

Appearance of Bracts

Exterior dimensions of the varieties were the same (24's). All the bracts (leaves) were from the third layer from outside.





DG 101 (Desert Globe) dimensions. Bottom of bract, 1 1/8", length 3 7/16". Imperial Star dimensions. Bottom of bract, 3/4", length 2 3/4".

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SD-470-_
(4-93)

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE, SCIENCE DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Globe Artichoke)

OBJECTIVE DESCRIPTION OF VARIETY

GLOBE ARTICHOKE (Cynara scolymus L.)

Name of Applicant(s)	Variety Name or Temporary Designation
Sulton Seed Research Corporation	D. G. - 101
Address (Street & No., or R.F.D. No., City, State, & Zip Code)	FOR OFFICIAL USE PVPO Number 9700354
86-705 Avenue 54, Suite A Coachella, CA 92236	

Place the appropriate number that describes the varietal characters typical of this variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness is necessary to establish an adequate variety description. Traits designated by a '*' are considered necessary for an adequate variety description and must be completed. Name and provide Check variety data on the right side of the form. Several seed propagated check varieties are 'Green Globe', 'Talpiot', and 'Texas Hill'.

	CHECK VARIETY NAME Imperial Star
1. MARKET MATURITY:	
* 169 No. Days from Seeding to 1st Head Harvest	204 Days Seeding to Harvest
59 No. Days in Harvest Period	49 Days Harvest Period
2. PLANT: (Harvest Stage)	
* 150 cm Plant Height	140 cm Plant Height
1 Plant Habit: 1=upright 2=intermediate 3=broad	2 Plant Habit
05 No. Axillary Shoots	04 Aux. Shoots
3. LEAF: (Harvest Stage)	
* 2 Leaf Color: 1=light green 2=medium green 3=dark green 4=gray green	2 Leaf Color
* 1 Leaf Spines: 1=none 2=few 3=many	1 Leaf Spines
75 cm Blade Length	80 cm Blade Length
55 cm Blade Width	60 cm Blade Width
20 cm Petiole Length	18 cm Petiole Length
3 Leaf Shape: 1=entire 2=slightly lobed 3=deeply lobed	3 Leaf Shape
1 Leaf Shape Variability: 1=slight 2=moderate 3=high	1 Leaf Shape Variability
4. PRIMARY FLOWER HEAD: (Harvest Stage)	
* 2 Primary Head Shape: 1=cylindrical 2=conical 3=ovoid 4=elipsoid	3 Primary Head Shape
13 cm Head Base Diameter	12 cm Head Base Diameter
16 cm Head Length or Depth	10 cm Head Length or Depth

4. PRIMARY FLOWER HEAD: (Harvest Stage) (continued)

	Application Variety Data	Check Variety Data
	3 Bract Tightness: 1=loose 2=moderately compact 3=compact	2 Bract Tightness
	1 Bract Luster: 1=dull 2=shiny	2 Bract Luster
*	2 External Bract Main Color: 1=light green 2=mid green 3=dark green 4=purple 5=other(specify) _____	5 Main Color glossy green and purple
*	1 External Bract Secondary Color: 1=none 2=purple tint 3=brown tint 4=green tint 5=purple-brown tint 6=other(specify) _____	2 Secondary Color
	__ Location of Secondary Color: 1=tip 2=center 3=base 4=throughout	3 Location of Secondary Color
	1 Internal Bract Color: 1=whitish-green 2=yellow-green 3=straw	1 Internal Bract Color
*	1 Bract Spines: 1=none 2=few 3=many	1 Bract Spines
	3 Bract Shape: 1=round 2=oval 3=elongated	2 Bract Shape
*	2 Bract Tip Shape: 1=entire 2=slightly notched 3=deeply notched	2 Bract Tip Shape
	90 mm Bract Length	70 mm Bract Length
	70 mm Bract Width	50 mm Bract Width
	90 cm Peduncle Length	70 cm Peduncle Length
	~~30~~ mm Peduncle Diameter	25 mm Peduncle Diameter
*	479 gm Weight per Primary Head	312 gm Primary Head Weight
*	07 No. Primary Heads/Plant	05 Primary Heads/Plant

5. SECONDARY FLOWER HEAD:

*	~~325~~ gm Weight per Secondary Head	275 gm Secondary Head Weight
*	12 No. Secondary Heads/Plant	07 Secondary Heads/Plant

6. FLORET:

*	5 Color: 1=white 2=pink 3=red 4=purple 5=blue 6=other _____	5 Floret Color
	139 mm Floret Diameter ~~not measured~~	131 mm Floret Diameter ~~not measured~~ SMS 5/14/97
	1042 No. Florets per Primary Head ~~not measured~~	928 Florets/Primary Head ~~not measured~~

7. ACHENE:

	1 Achene Color: 1=monocolor 2=bicolor	2 Achene Color
	1 Achene Color Pattern: 1=solid 2=speckling 3=striping 4=other _____	3 Color Pattern
*	5 Achene Primary Color: 1=tan 2=brown 3=green 4=black 5=gray 6=other _____	2 Primary Color
	5 Achene Secondary Color: (Choose from above -- specify other) _____	4 Secondary Color dark brown
*	41 gm Weight per 1000 Achenes	38 gm/1000 Achenes

Application Variety Data	Page 3	Check Variety Data
8. ANTHOCYANIN: (1=absent; 2=noticeable; 3=very noticable)		
1 Leaf Petiole		1 Leaf Petiole
1 Leaf Blade		1 Leaf Blade
1 Peduncle		2 Peduncle
1 Petal		3 Petal
1 Head Bract		2 Head Bract
1 Bract Spine		1 Bract Spine
1 Leaf Spine		1 Leaf Spine
1 Pappus		1 Pappus
1 Achene		1 Achene
__ Other (Specify) _____		__ Other (Specify) _____
9. DISEASE REACTION: (Enter 0=Not Tested; 1=Susceptible; 2=Resistant)		CHECK VARIETY DATA:
0 Botrytis Rot (Botrytis cinerea)		0 Botrytis Rot
0 Curly Dwarf Virus		0 Curly Dwarf Virus
0 Black Tip Syndrome		0 Black Tip Syndrome
__ Other none seen in 1996-97 performance test. none seen in three years of seed increase.		__ Other _____
10. INSECT REACTION: (Enter 0=Not Tested; 1=Susceptible; 2=Resistant)		
0 Plume Moth (Platyptilia carduidactyla)		0 Plume Moth
1 Aphid		1 Aphid
2 2-Spotted Spider Mite		2 2-Spotted Spider Mite
2 Chrysanthemum Leafminer		1 Chrysanthemum Leafminer
0 Cribrate Weevil		0 Cribrate Weevil
__ Other _____		__ Other _____

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Ryder, E.J., N.E. De Vos, and M.A. Bari. 1983. The globe artichoke (Cynara scolymus L.). HortScience 18(5):646-653.

2. Basnitzki, Y. and D. Zohary. 1987. A seed-planted cultivar of globe artichoke. HortScience 22(4):678-679.

3. Dellacecca, V., V. Magnifico, V. Marzi, E. Porceddu, and S. Mugnozza. 1974. Contributo alla conoscenza delle varieta' di carciofo coltivate nel mondo (Description of artichoke varieties cultivated in the world). Nuovi Studi sul Carciofo. Paper from Second International Congress on Artichoke Studies. pp.199-315.

COMMENTS:

EXHIBIT D

Additional Description of Variety

General Observations

The D.G. - 101 variety is very uniform for early upright growth, with numerous primary and secondary branches, and a longer harvest period than other seeded varieties in the California and Arizona desert areas, resulting in high yields during the desired production period of mid-January to mid-March. It produces very large buds, conical in shape, with very tight elongated bracts.

Distinctive Characteristics

D.G. - 101 is novel and distinct from "Imperial Star" and other seeded artichoke varieties which are grown in the California and Arizona desert areas in the following manner: (i) it produces artichokes approximately thirty (30) to thirty-five (35) days earlier (from seeding to harvest) in the desert areas and the peak harvest period lasts longer; (ii) it produces a more upright and compact plant; (iii) it has more primary and secondary buds; (iv) it has a conical, more compact, and larger head which more closely resembles the "Green Globe" artichoke; (v) the bud has a dull, medium green color; and (vi) the bracts are elongated.

Flower Head Characteristics

The D.G. - 101 variety has a conical shape which most closely resembles the "Green Globe" variety. However, D.G. - 101 has spineless flower bracts and leaves, while the "Green Globe" variety has spines and the "Imperial Star" variety has an indentation in place of a spine. The external bracts of D.G. - 101 are a uniform dull, medium green color, while the internal bracts are a uniform whitish-green color. Less than ten percent (10%) of the bracts have a slight purple color. The bracts are elongated.

Achene Appearance

The seed is a uniform gray color. There is no black or multi-colored seed, as is the case with "Imperial Star". D.G. - 101 is a good seed producer which make heavy seed (it weighs approximately 41 grams per 1000 seed).

Achene Germination and Cotyledon Appearance

D.G. - 101 had very high germination after storage for twelve (12) months. The germinating D.G. - 101 seedlings are uniformly a light green color. There are no white cotyledons as is the case with "Imperial Star."

Earliness/Production

In the desert areas, the first harvest of D.G. - 101 is generally thirty (30) to thirty-five (35) days earlier than "Imperial Star" or other seeded varieties, and the peak harvest period generally lasts longer. D.G. - 101 is a high yielding variety, averaging approximately one thousand (1,000) cartons per acre, with approximately forty percent (40%) of the crop sizing at either 12 or 18 buds per carton, and approximately twenty-five (25%) percent of the crop sizing at 24 buds per carton. In the comparison test, "Imperial Star" averaged a yield of approximately seven hundred fifty (750) cartons per acre, with predominate sizing at 24 buds per carton or smaller buds.

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REPRODUCE LOCALLY. *Include form number and date on all reproductions.*

FORM APPROVED - OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)

SULTON SEED RESEARCH CORPORATION

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

4-B-57

3. VARIETY NAME

D. G. 101

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*

86-705 Avenue 54, Suite A
Coachella, CA 92236

5. TELEPHONE *(include area code)*

760-399-4278

6. FAX *(include area code)*

760-399-4281

7. PVPO NUMBER

Application No. 9700354

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant *(individual or company)* a U.S. national or U.S. based company?
If no, give name of country _____ [X] YES [ ] NO

10. Is the applicant the original owner? [ ] YES [X] NO *If no, please answer the following:*

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

[X] YES [ ] NO *If no, give name of country* _____

b. If original rights to variety were owned by a company, is the original owner(s) a U.S. based company?

[X] YES [ ] NO *If no, give name of country* _____

11. Additional explanation on ownership *(If needed, use reverse for extra space):*

See Exhibit E filed initially with the Application.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD).
To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

EXHIBIT E

Statement of the Basis of Applicant's Ownership

In 1985, Jack Bros. & McBurney, Inc. ("Jack Bros."), a Calif. corporation, located in Brawley, California, received a release of an artichoke germplasm breeding line, designated as K6 - RR♂ x K8♀, from Mr. Joseph Principe, plant breeder for the United States Dept. of Agriculture (U.S.D.A.) research field station in Brawley, Calif. Mr. Principe advised Jack Bros. that he had developed this breeding line from numerous crosses that Mr. Principe had made between a French artichoke line (obtained via Dr. R.C. Tang, Desert Seed Co., El Centro, Calif.) and an Italian artichoke line (obtained via Dr. E.J. Ryder, U.S.D.A. research field station in Salinas, Calif.).

Jack Bros. subsequently made selections from K6 - RR♂ x K8♀ for upright plants with prolific bud formation, compact conical bud shape similar to the Green Globe variety, and with early maturing fruit available for harvest during the desired period of mid-January to mid-March (the "Desired Characteristics"). On May 19, 1993, Jack Bros. transferred all of its right, title and interest in and to the artichoke breeding lines which consisted of the selections it had made from K6 - RR♂ x K8♀ to Sulton Seed Research Corporation ("Applicant"), a Calif. corporation.

On July 1, 1993, Applicant entered into a Consulting Agreement with Dr. Willis W. Bradford ("Consulting Agreement"), regarding his performance of consulting services for Applicant, as a plant breeder, a copy of which is attached hereto. In connection with the services rendered pursuant to the Consulting Agreement on behalf of Applicant, Dr. Bradford subsequently made selections, self-pollinations and sib crossings from the above-described breeding lines which led to the development of the distinct, uniform and stable artichoke variety D.G. - 101 with all of the Desired Characteristics. Pursuant to the terms of the Consulting Agreement, all rights, title and interest in and to the artichoke variety D.G. - 101 belong to Applicant, and Dr. Bradford is required to execute any assignments required in favor of Applicant to legally establish Applicant's property rights. Further, Dr. Bradford has executed an Assignment of Rights, which assigns any and all rights, title and interest in and to the artichoke variety D.G. - 101 which Dr. Bradford may have to Applicant, a copy of which is attached hereto. Therefore, Applicant is the owner of all rights, title and interest in and to the artichoke variety D.G. - 101.

9700354

CONSULTING AGREEMENT

THIS AGREEMENT, dated as of July 1, 1993, is made by and between SULTON SEED RESEARCH CORPORATION, a California corporation ("COMPANY"), and W.W. BRADFORD, an individual ("CONSULTANT").

Whereas, COMPANY conducts scientific research relating to the propagation and development of new, improved and/or disease-resistant artichoke seed, and the qualifications of such new strains and varieties for Plant Variety Protection Certificates and/or Utility Patents, and

Whereas, CONSULTANT is willing to undertake certain services in connection with developing and testing of artichoke seeds and plants for COMPANY.

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree to the following terms and conditions:

1. Term. The term of this Agreement shall commence on the date of this Agreement and shall continue for a period of twelve (12) months. Thereafter, this Agreement shall continue on an annual basis, on the same terms and conditions set forth herein, until either party shall give the other party a written notice of termination thirty (30) days prior to the date of termination.

2. Duties. CONSULTANT will render the following services to COMPANY, in accordance with the instructions and directions given to him from time to time by the Company:

(i) On a regular basis, engage in the breeding and propagating of artichoke seed varieties to produce new varieties, lines and strains, at such locations as are specified from time to time by the COMPANY.

(ii) On a regular basis, offer advice and give advice on what crops from experimental seed and/or plants should be market tested to determine various qualities that may affect the value of said strains.

CONSULTANT shall make himself available to render the services requested by COMPANY pursuant to this Agreement at all reasonable times requested or required by COMPANY, so as

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to permit CONSULTANT to diligently and faithfully perform all of his obligations under this Agreement. This Agreement shall not prohibit CONSULTANT from engaging in other business activities or accepting other employment, provided that such activities do not conflict with, or interfere with, the performance by CONSULTANT of his duties hereunder.

CONSULTANT further agrees that he will not, so long as this Agreement is in effect, engage in services for, or become financially interested or invest capital in, any business or any enterprise competitive with the services and work undertaken by CONSULTANT pursuant to this Agreement.

3. Compensation. COMPANY agrees to pay CONSULTANT Five Hundred Dollars ($500) per month for the time spent on COMPANY's behalf pursuant to this Agreement. COMPANY shall also reimburse CONSULTANT for all reasonable travel and other expenses incurred by CONSULTANT in connection with the performance of his responsibilities under this Agreement, provided that such expenses are mutually agreed upon by COMPANY and CONSULTANT. CONSULTANT shall be reimbursed for automobile expenses at the rate of Twenty Seven Cents ($.27) per mile.

CONSULTANT shall invoice COMPANY monthly for payment for his services and for reimbursement of his expenses. Such invoice shall set forth in reasonable detail the services performed by CONSULTANT for COMPANY and the amount of time spent on each type of service, as well as an itemization of expenses. At the request of COMPANY, CONSULTANT shall supply COMPANY with a copy of the receipts for his expenses.

COMPANY shall mail a check to CONSULTANT (to the address set forth in this Agreement) for payment of any invoice submitted by CONSULTANT, within thirty (30) days of the date of receipt of the invoice by COMPANY, unless the amount of such invoice is disputed by COMPANY in writing prior to the end of such thirty (30) day period.

4. Independent Contractor. It is mutually agreed and understood that CONSULTANT is, and at all times hereunder shall be, an independent contractor and at no time shall he become a partner, an associate, or an employee of COMPANY, nor shall CONSULTANT become entitled to any type of employee benefits, including, without limitation, medical or disability benefits, vacation or pension benefits. CONSULTANT shall be responsible for maintaining his own insurance coverage as CONSULTANT may deem necessary for protection of his own interests, including, without limitation, automobile insurance. At the request of COMPANY, CONSULTANT shall provide COMPANY with evidence of his automobile insurance coverage. CONSULTANT shall also be responsible for payment of all of his own income taxes,

social security taxes, and any other taxes imposed by local, state or federal authorities, and CONSULTANT acknowledges that COMPANY shall not withhold any taxes from any sums paid to CONSULTANT. CONSULTANT agrees that he shall reimburse the COMPANY for any liabilities, costs, expenses and attorneys' fees incurred by the COMPANY as a result of the CONSULTANT's failure to properly discharge his tax obligations.

5. No Agency or Power to Employ or Bind Without Prior Authorization. Without the express prior authorization of COMPANY, CONSULTANT is not empowered to, and shall not, act as agent of COMPANY for any purpose whatsoever, nor shall CONSULTANT attempt to bind or commit COMPANY to any contract or other arrangement. No provision contained in this Agreement shall be construed or interpreted to confer any rights or powers upon CONSULTANT, except that of rendering consulting services to COMPANY pursuant to the terms of this Agreement.

6. Records and Materials. Any and all records or materials in the possession of CONSULTANT which are acquired, created or accumulated pursuant to the services rendered hereunder, including, but not limited to, any and all seed, plants, parts and germplasm, and any originals or copies of any and all correspondence, field maps, planting and harvesting schedules, research and other reports, itineraries, notes, data, work papers, work product, or otherwise, shall be and remain the property of COMPANY, and shall be delivered and surrendered to COMPANY, at the request of COMPANY.

CONSULTANT shall permit COMPANY to inspect his work and review his records pertaining to this Agreement at all reasonable times. CONSULTANT shall keep full and complete records in such form as from time to time are prescribed by COMPANY and pertaining to all attributes of said seed and plants that he is experimenting with or breeding, with particular reference to the manner in which the same may differ from other strains or varieties, including visual records of said seed, and CONSULTANT shall render to COMPANY, upon COMPANY's REQUEST, written reports concerning said matters.

7. Research and Development. CONSULTANT agrees that all research, discoveries and inventions, whether patentable, or subject to the Plant Variety Protection Act, or not, conceived, made or developed, in whole or in part, by CONSULTANT, or jointly with another, during the period of this Agreement, and relating in any way to the breeding or development of new varieties of artichokes, shall be disclosed promptly to COMPANY or its successors or assigns,

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and that such discoveries and inventions are and shall be the absolute property of COMPANY.

CONSULTANT further agrees to execute specific papers of assignment in favor of COMPANY at the request of COMPANY relating to any and all said inventions and discoveries so conceived, made or developed, and all Plant Variety Protection Act and Utility Patent rights pertaining thereto.

CONSULTANT further agrees to execute any Utility Patent and/or Plant Variety Protection Certificate applications or other documents requested by COMPANY and relating to said discoveries and inventions, to use his best efforts to aid and assist COMPANY in obtaining United States or foreign patent protection in said discoveries and inventions during the course of this Agreement and/or after termination thereof, and to aid and assist COMPANY in any litigation or controversy, whether arising from a Utility Patent, a Plant Variety Protection Certificate, contract or otherwise, and which relates to said discoveries or inventions.

It is further understood and agreed by CONSULTANT that the title to all experimental seed and plants, whether developed by CONSULTANT or not, and all their parts, pollen and germplasm and all varieties and lines derived therefrom, including all offspring, mutations and new varieties, and including all Utility Patent and Plant Variety Protection Act rights pertaining thereto, shall at all times remain in COMPANY and the same shall always remain the personal property of COMPANY.

8. Confidentiality. During the term hereof, CONSULTANT may have access to, and may become acquainted with, research, inventions, processes, field maps, planting and harvesting schedules, various business plans and strategies, trade secrets and/or compilations of information, records, and specifications which are owned or possessed by COMPANY, and used in the operation of COMPANY's business and not divulged to the public or trade (all such items being herein referred to collectively as the "PROPRIETARY INFORMATION"). CONSULTANT agrees that it shall not use or disclose any of the PROPRIETARY INFORMATION, directly or indirectly, either during the term of this Agreement or at any time thereafter, except as specifically requested by COMPANY during the course of the performance of CONSULTANT's duties hereunder, and that CONSULTANT will take all reasonable steps necessary to prevent such PROPRIETARY INFORMATION from falling into the hands of others.

CONSULTANT further agrees not to give away, sell or dispose of any seed, plants, or any of their parts or pollen, or to permit any unauthorized person to inspect, examine, take, or remove said seed, plants, or their parts, pollen or their crops, for any purpose whatsoever.

CONSULTANT further agrees that a violation of any provision of this Section shall, without limitation of any other remedies otherwise available in law or equity to COMPANY, be cause for immediate termination of this Agreement by COMPANY.

9. Entire Agreement. This Agreement contains the entire agreement of the parties hereto with respect to the matters set forth herein and may not be modified, altered, or changed in any manner whatsoever, except by a written agreement signed by the parties hereto. This Agreement shall supersede all prior agreements or understandings, whether written or oral, that may have been made or entered into by COMPANY and CONSULTANT relating to the rendering of consultant services by CONSULTANT to COMPANY.

10. Notices. Any communications between the parties hereto or notices provided herein to be given may be given by mailing the same, postage prepaid (effective three (3) days from dispatch), or by telex, telegraphic, or cable devices (effective one (1) day from dispatch), to the parties to this Agreement at the respective addresses set forth below, or to such other addresses as either of the parties hereto may indicate in writing hereafter.

If to COMPANY:
SULTON SEED RESEARCH CORPORATION
86-695 Avenue 54, Suite L
Coachella, CA 92236
Attention: Jeff Percy
Phone: (619) 399-4278
FAX: (619) 399-4281

If to CONSULTANT
W.W. BRADFORD
454 West K. Street
Brawley, CA 92227
Phone: (619) 344-4753

11. Governing Law and Litigation Costs. This Agreement shall be governed by and construed in accordance with the laws of the State of California. In the event of arbitration, litigation or other alternative for dispute resolution arising from this Agreement, the prevailing party (whether by judgment, settlement, or otherwise) shall be entitled to recover from the other party its costs and reasonable attorneys' fees incurred in connection therewith.

12. Assignment. CONSULTANT shall not have the right to assign this Agreement, in whole or in part. Except for the foregoing, this Agreement shall be binding upon and inure to the benefit of the parties hereto and to their respective heirs, successors and assigns.

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13. Validity. It is the intention of the parties that this entire Agreement be valid and enforceable in its entirety. In the event any provision of this Agreement shall be held invalid or unenforceable, such determination shall not effect the validity or enforceability of the remainder of this Agreement.

IN WITNESS WHEREOF, the duly authorized representatives of the parties have executed this Agreement as of the date and year first written above.

SULTON SEED RESEARCH CORPORATION

By: J.H. Lowry

Title: Pres.

W. W. Bradford

W.W. BRADFORD

ASSIGNMENT OF RIGHTS

WHEREAS, Dr. Willis W. Bradford, an individual, having his residence at 454 W. K Street, Brawley, CA 92227 ("Assignor"), has rendered services as a plant breeder for Sulton Seed Research Corporation, a California corporation, having its principal place of business at 86-705 Avenue 54, Suite A, Coachella, CA 92236 ("Assignee"), pursuant to the terms of a Consulting Agreement, dated July 1, 1993, by and between Assignor and Assignee (the "Consulting Agreement"); and

WHEREAS, in connection with the services rendered pursuant to the Consulting Agreement, Assignor developed a new artichoke variety named "D.G. - 101" from propriety artichoke germplasm breeding lines owned by Assignee; and.

WHEREAS, under the terms of the Consulting Agreement, all rights, title and interest in and to the artichoke variety D.G. - 101 belong to Assignee, and Assignor is required to assign any and all rights, title and interest that he may have in and to the artichoke variety D.G. - 101 to Assignee; and

WHEREAS, Assignee is desirous of acquiring all rights, title and interest in and to the artichoke variety D.G. - 101.

NOW THEREFORE, for good and valuable consideration, which includes the payments made to Assignor pursuant to the Consulting Agreement, receipt of which is hereby acknowledged, Assignor does hereby assign unto Assignee all of its rights, title and interest in and to the artichoke variety D.G. - 101, and any Utility Patents, Plant Patents, or Plant Variety Protection Act Certificates which may hereafter be granted on the same in the United States and all countries throughout the world, including, without limitation, any divisions, renewals, continuations, in whole or in part, substitutions, conversions, reissues, prolongations or extensions thereof, said interest to be held and enjoyed by said Assignee as fully and exclusively as it would have been held and enjoyed by said Assignor had this assignment and transfer not been made, together with the right to sue for infringement or violation of any rights relating thereto.

Assignor further agrees that he will, at Assignee's expense, execute, verify, acknowledge and deliver, any Utility Patent, Plant Patent, and/or Plant Variety Protection Act applications, and such further papers, documents, assignments or other instruments of transfer requested by Assignee and relating to the artichoke variety D.G. - 101, and will perform such other acts as Assignee lawfully may request, to obtain or maintain any Patent or Certificate, for said artichoke variety D.G. - 101 in any and all countries, and to vest title thereto in said Assignee, or Assignee's successors and assigns, and to aid and assist Assignee in any litigation or controversy which relates to the artichoke variety D.G. - 101.

IN WITNESS WHEREOF, the Assignor has executed this Assignment of Rights as of the date set forth below.

DATE: July 8, 1997

Willis W. Bradford
DR. WILLIS W. BRADFORD

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